Notes 11/12 - Modeling, Problem-Solving, + Systems

To help you solve word problems:

- Find important information from question
- Define variables
- Set-up equations / translate

- System of Equations - has more than one variable in the problem

→ You need as many equations as you have variables

2 variables → need 2 equations
3 variables → need 3 equations
n variables → need n equations

Ex 1: My big bag of candy has 300 pieces total. I got 4 times as many jolly ranchers as laffy taffys. How many jolly ranchers did I get?

j = # jolly ranchers l = # laffy taffy

$j + l = 300$ $j = 4l$

"substitution"

$4l + l = 300$

$\frac{5l}{5} = \frac{300}{5}$

$l = 60$ $j = 4l = 4(60) = 240$

240 jolly ranchers

Ex 2: I sled down a hill 3 times as fast as I can climb it. If it takes me a total of 8 min to climb up and sled down, how long does it take me to climb?

S = time to sled down C = time to climb up

$C = 3S$

or $S = \frac{1}{3}C$

$S + C = 8$

$S + 3S = 8$

$\frac{4S}{4} = \frac{8}{4}$ $S = 2$ min

$C = 3(S) = 3(2) =$ 6 min to climb up